

EXHIBIT 36

DR. NICHOLAS PEPPAS
OREXO AB vs. MYLAN

November 29, 2012

1

1
2 UNITED STATES DISTRICT COURT
3 FOR THE DISTRICT OF NEW JERSEY
4 -----

5 OREXO AB,

6 Plaintiff,

7 vs. Civil Action No.
8 3:11-CV-03788
9

10 MYLAN PHARMACEUTICALS INC.,
11 and MYLAN INC.,

12 Defendants.
13 -----

14
15 VIDEOTAPED DEPOSITION OF

16 DR. NICHOLAS PEPPAS

17 THURSDAY, NOVEMBER 29, 2012

18 9:30 a.m.
19
20
21
22
23
24

25 Reported by: Adrienne M. Mignano, RPR
Job Number: 331534

DR. NICHOLAS PEPPAS
OREXO AB vs. MYLAN

November 29, 2012
27

1 Peppas
2 at two different stirring speeds, 25 and
3 100 RPM."
4 A Yes.
5 Q Did I read that correctly?
6 A Yes.
7 Q What, if anything, does that
8 test tell you about the bioadhesiveness of
9 the product described in Example 1?
10 A In general terms, it gives the
11 dissolution rate, how fast or how slowly
12 the drug comes out of the device. The
13 test or the experiment by itself does not
14 have inherent characteristics of
15 bioadhesion, that particular experiment.
16 Q It tells you nothing about
17 bioadhesiveness?
18 A It does not.
19 Q Let's go back to your
20 declaration, Exhibit 1, and I think we're
21 at paragraph 11 of your declaration.
22 You noted that you published
23 more than 100 papers on the design and use
24 of mucoadhesive polymers, right?
25 A That's true.

1 Peppas
2 of good order, let me mark it for
3 identification as Peppas Exhibit 5,
4 and it bears production numbers ORM
5 1271 to 1274.

6 (Whereupon, Hersey Article,
7 Powder Technology, Volume 11, 1975,
8 Bates Stamped ORM 1271 to 1274, was
9 marked as Peppas Exhibit 5 for
10 identification, as of this date.)

11 BY MR. HOCHSTETLER:

12 Q Is Peppas Exhibit 5 the classic
13 Hersey article to which you referred?

14 A I believe that it is a very
15 important classic article in the field.

16 MR. HOCHSTETLER: I'm going to
17 mark for identification as Peppas
18 Exhibit 6 a document bearing
19 production numbers ORM 1340 to 1342.

20 (Whereupon, Hersey Article,
21 Bates Stamped ORM 1340 to 1342, was
22 marked as Peppas Exhibit 6 for
23 identification, as of this date.)

24 BY MR. HOCHSTETLER:

25 Q Is Exhibit 6 the other Hersey

DR. NICHOLAS PEPPAS
OREXO AB vs. MYLAN

November 29, 2012
62

1 Peppas

2 are asking me for the specific case, the
3 specific system. I cannot give you that
4 answer. It could be a variety of ways,
5 but I cannot tell you.

6 Q As you're sitting here today,
7 can you describe the universe of potential
8 ways that may explain how the particles of
9 active agent are adhered to the carrier
10 particles?

11 A Well --

12 MR. ZULLOW: Wait, wait.

13 Objection to form.

14 Now you can answer.

15 A I think I have been asked to
16 define terms, not to present explanations
17 on how particles are held together. That
18 goes to another area that I have not
19 addressed any further than just the
20 general terms that I had in my
21 declaration.

22 Q Are you prepared sitting here
23 today to describe what interactive forces
24 are binding the active agent to the
25 carrier particles in Nystrom?

DR. NICHOLAS PEPPAS
OREXO AB vs. MYLAN

November 29, 2012
63

1 Peppas

2 A I am prepared to say what could
3 be some of these forces.

4 Q And what could be some of those
5 forces?

6 A Electrostatic interactions, Van
7 Der Waals, V-A-N, D-E-R, W-A-A-L-S,
8 interactions. Adsorption, A-D. Many,
9 many other forces. Many, many other,
10 excuse me, interactions.

11 Q Any other that occur to you as
12 you sit here now?

13 A No, those are really the ones
14 that I can think right now.

15 Q Can you think of any others?

16 A Not right now.

17 Q Does Nystrom use water in the
18 process of making the ordered mixture, its
19 ordered mixture?

20 A Would you like to direct me to
21 an example?

22 Q We were talking about Example 2
23 in Nystrom. Let's look at Example 2.

24 A Nystrom does not explicitly
25 refer to water in this, in this

DR. NICHOLAS PEPPAS
OREXO AB vs. MYLAN

November 29, 2012
80

1 Peppas
2 regarding the term "bioadhesion and/or
3 mucoadhesion promoting agent".

4 Do you see that the -- can I
5 call it mucoadhesive?

6 A Yes, please.

7 Q Do you see that the mucoadhesive
8 is a limitation of both Claim 1 and Claim
9 19?

10 A Yes, I do.

11 Q Do you understand the term
12 "bioadhesion and/or mucoadhesion promoting
13 agent" to have the same meaning in Claim 1
14 and Claim 19?

15 A Yes.

16 Q It is your position, I believe,
17 that the ordered mixture that is claimed
18 in the '910 Patent must include the
19 mucoadhesive; is that correct?

20 A That is correct.

21 Q Must it also include the active
22 agent?

23 A It could and it could not.

24 Q So --

25 A We can go to the section where

DR. NICHOLAS PEPPAS
OREXO AB vs. MYLAN

November 29, 2012
82

1 Peppas

2 that in my declaration. I don't want to
3 repeat things if they are clearly
4 understood by both sides.

5 Q Unfortunately, sir, I'm sure it
6 is clearly understood on Mr. Zullo's side
7 of the table, but it is not understood by
8 me, so I was hoping --

9 A I was the one who wrote the
10 report so it's clearly understood by me,
11 and hopefully by Dr. Zullo.

12 MR. ZULLOW: I've just been
13 promoted.

14 A I would like to go to Claim 1,
15 the first item. I'd like to go to Claim 1
16 if you don't mind.

17 Q Very good.

18 A And I would like to start with
19 line 45. And you can see now why I made
20 the correction in my --

21 Q Where are we again? I
22 apologize.

23 A 45, line 45 on --

24 MR. ZULLOW: He wants to know
25 what paragraph in your declaration you

1 Peppas
2 are referring him to.

3 A Paragraph 70, which is the page
4 before the page you wanted to go.

5 So, as I say, I understand the
6 ordered mixture comprise of two
7 components, so please turn your attention
8 to the patent and go to line 45. "Ordered
9 mixture of microparticles."
10 Microparticles of what? "Of at least one
11 pharmaceutically active agent adhered to
12 the surfaces of carrier particles", that
13 for me is the first component of this
14 structure, of this ordered mixture.

15 Now, there is an explanation
16 there, "said particles" -- which
17 particles? -- "the particles of the
18 carrier being substantially larger than
19 said microparticles in being water
20 insoluble", that is the end of the first
21 component.

22 Here comes the second component
23 of the ordered mixture. "And the
24 bioadhesion or mucoadhesion promoting
25 agent mainly adhere to the surface of the

DR. NICHOLAS PEPPAS
OREXO AB vs. MYLAN

November 29, 2012
84

1 Peppas

2 carrier particles."

3 So it is my understanding and my
4 belief that the ordered mixture is between
5 those two components. First component
6 being A, as I have it in my deposition, in
7 my, excuse me, my declaration, and second,
8 component B is the mucoadhesive.

9 Q Component A is, I'm just
10 quoting, "microparticles of at least one
11 pharmaceutically active agent adhered to
12 the surfaces of carrier particles", right?

13 A Yes.

14 Q So why isn't the active agent a
15 necessary part of the ordered mixture
16 claimed in the '910 Patent?

17 A Because in those two lines,
18 there is no mention of an ordered mixture.
19 The ordered mixture is two components.
20 The first component and then second, and
21 the comma in front of the and clearly
22 states where the two components are.

23 So the first component, which is
24 A, as I described it, could or could not
25 be -- I do not see any requirement that it

DR. NICHOLAS PEPPAS
OREXO AB vs. MYLAN

November 29, 2012
100

1 Peppas

2 page 181.

3 A Yes, sir.

4 Q You're familiar with this page,
5 correct?

6 A I am familiar with this page,
7 yes.

8 Q You discuss this page in your
9 report; isn't that right?

10 A Yes.

11 Q There is a sentence --

12 A Right.

13 Q In Exhibit 3, I think I wanted
14 to ask you about the sentence is "In fact,
15 Nystrom fails to disclose or suggest a
16 combination of ordered mixtures and
17 mucoadhesive agents."

18 Do you see that, sir?

19 A Yes, I do.

20 Q And Nystrom is the reference
21 that we were discussing before, Peppas
22 Exhibit 7?

23 A I believe so, yes.

24 Q My question was: Was the
25 statement that I just read, "In fact,

DR. NICHOLAS PEPPAS
OREXO AB vs. MYLAN

November 29, 2012
101

1 Peppas

2 Nystrom fails to disclose or suggest a
3 combination of ordered mixtures and
4 mucoadhesive agents" true?

5 A It is part of the document. I
6 consider it to be true.

7 Q Is the sentence true, the
8 statement true?

9 A Oh, you mean, it is part of this
10 document that they have submitted. Yes,
11 because Nystrom has no reason to mention
12 any mucoadhesive or bioadhesive
13 components. Nystrom is not a patent about
14 bioadhesive systems.

15 Q Exhibit 15 to your declaration
16 is the Bredenberg article; isn't that
17 right, sir.

18 A Yes.

19 MR. HOCHSTETLER: We'll mark
20 that for identification as Exhibit 9.
21 It will be the copy bearing production
22 numbers ORM 1343 to 1351.

23 (Whereupon, Bredenberg Article,
24 Bates Stamped ORM 1343 through 1351,
25 was marked as Peppas Exhibit 9 for

DR. NICHOLAS PEPPAS
OREXO AB vs. MYLAN

November 29, 2012
137

1 Peppas
2 result observed, but it doesn't give me
3 the whole answer about how Kollidon works.

4 Is that clear? Especially when
5 I have the tablet results before that.

6 Q Now, the tablet results, I
7 thought you said, showed that the probe
8 had greater bioadhesive capability than
9 the Kollidon based on the test result.

10 MR. ZULLOW: Objection to form.
11 That mischaracterized earlier
12 testimony.

13 A What I said is that the
14 adhesion, not the probe -- I said clearly,
15 and I repeat it for the record, the tablet
16 adheres to the bioadhesive -- excuse me,
17 to the pig intestine so well that the
18 tablet breaks rather than the interface.
19 And I have a support, Figure 4.

20 So we have two or three sets of
21 data here, and I have enough information
22 based on this data, and without seeing the
23 original results, to make a conclusion
24 that Kollidon has adhesion, and that's
25 what I say, I think, in my report. That

1 Peppas
2 this data helped me make additional
3 information that Kollidon-CL is an
4 mucoadhesive.

5 Q Can you draw any conclusions
6 from the test as to whether the adhesive
7 force between the Kollidon and the mucus
8 is greater than the adhesive strength
9 between the Kollidon and the carrier?

10 MR. ZULLOW: Wait a second. I
11 just want to read the question back.

12 A I would like you to repeat the
13 question, although I almost understood it.

14 MR. ZULLOW: I'll object as
15 asked and answered.

16 A Could you just repeat the
17 question?

18 Q She's going to read it.

19 (Record read)

20 A Not from the tablet test.
21 Kollidon and the carrier, I have some
22 indications, but it is not a conclusion.
23 It is not a firm conclusion.

24 Q And what are the "some
25 indications" to which you are referring?

DR. NICHOLAS PEPPAS
OREXO AB vs. MYLAN

November 29, 2012
141

1 Peppas
2 declaration in addition to Peppas Exhibit
3 1 in connection with the Markman Hearing?

4 A No. This is my declaration;
5 that's what I have been asked to do.

6 Q You haven't been asked to
7 prepare another one.

8 MR. HOCHSTETLER: I have no
9 further questions.

10 MR. ZULLOW: I have a few
11 questions. Very short.

12 EXAMINATION BY

13 MR. ZULLOW:

14 Q Dr. Peppas, earlier today,
15 Mr. Hochstetler asked you some questions
16 about whether there were any embodiments
17 described in the '910 Patent that
18 addressed the bio/mucoadhesive in an
19 ordered mixture with the carrier which
20 didn't address the active. At the time,
21 you said you didn't recall, if I remember
22 correctly.

23 MR. HOCHSTETLER: Objection.

24 Q I'm trying to get you back. I
25 would like you to go to your declaration

DR. NICHOLAS PEPPAS
OREXO AB vs. MYLAN

November 29, 2012
142

1 Peppas

2 and go to paragraph number 73.

3 Do you see that, paragraph 73;
4 do you recognize paragraph 73?

5 A Of course I do.

6 Q Is that something that you
7 prepared?

8 A Of course.

9 Q What do you understand that
10 to -- what are you discussing in that
11 paragraph?

12 A I'm discussing embodiment based
13 on '910 from Column 5, lines 53-65, that
14 includes bioadhesive and carrier
15 particles. I read exactly those lines and
16 I'm trying to split them into four
17 distinct portions, if you wish.

18 So the first one says, "In order
19 for the pharmaceutical composition of the
20 invention to function properly when a
21 bio/mucoadhesion promoting agent is added
22 thereto, this agent must be positioned at
23 the surface of the carrier particles."

24 Second portion is "The muco --
25 bio/mucoadhesion promoting agent can be

1 Peppas

2 then admixed to the carrier particles in
3 several ways."

4 Third one is "In a preferred
5 embodiment of the invention, a fine
6 particular quality of the mucal --
7 bio/mucoadhesion promoting agent is mixed
8 together with a coarse carrier for a
9 sufficient time to produce an ordered
10 mixture where the final particles exist as
11 discrete primary particles are adhered to
12 the surface of the carrier."

13 And then concludes with "Thus,
14 the bio/mucoadhesion promoting agent is
15 admixed in the same way as the active
16 compound described in European Patent
17 '725."

18 So what's your question?

19 Q Is it your understanding that --
20 well, first, the section that you just
21 read refers to the patent at column 5,
22 lines 53 to 65, correct?

23 A Uh-huh.

24 Q And is it your understanding
25 that that section refers to an embodiment

DR. NICHOLAS PEPPAS
OREXO AB vs. MYLAN

November 29, 2012
144

1 Peppas

2 that includes the bioadhesive and the
3 carrier particles but not the
4 pharmaceutically active agent?

5 MR. HOCHSTETLER: Objection.

6 That is leading.

7 Q You can answer the question.

8 A The pharmaceutical composition
9 includes here -- the composition includes
10 the bioadhesive and the carrier particles
11 and it does not have any pharmaceutical
12 active agent.

13 Q Now, there was some questions at
14 the very beginning of the day relating to
15 the relationship between bioadhesives and
16 essentially water free, and I would like
17 to ask you some questions about that.

18 Where do you address
19 bioadhesives in your declaration?

20 A Starting on page 38 with
21 paragraph 112.

22 Q Am I correct it goes on through
23 to basically the end of the declaration,
24 correct?

25 A Yes, sir. And as I said before,

DR. NICHOLAS PEPPAS
OREXO AB vs. MYLAN

November 29, 2012
146

1 Peppas

2 A Of course it is. I present it.
3 It means that and I have it in quotations.

4 Q Okay.

5 Now, you also discussed the
6 importance of being essentially water free
7 and its relation to the bioadhesive.

8 Do you remember that?

9 A Yes, I do.

10 Q Why don't you turn to paragraph
11 33.

12 Let's do it this way: Where do
13 you address essentially water free in your
14 declaration?

15 A In the first few paragraphs
16 starting on 26 and going to about 58.

17 Q Now, you were asked questions
18 about -- were you asked questions that
19 related to Column 7, lines 33 -- 33 to 43?

20 A Of the patent?

21 Q Of the patent, yes.

22 A Yes, sir.

23 Q And am I correct that here we're
24 talking about -- well, is the
25 bioadhesive -- excuse me, the

DR. NICHOLAS PEPPAS
OREXO AB vs. MYLAN

November 29, 2012
147

1 Peppas

2 bio/mucoadhesive/mucoadhesive -- excuse
3 me. Let me try again.

4 Is the bioadhesion and/or
5 mucoadhesion promoting agent referred to
6 here in the final formulation or somewhere
7 else?

8 A It is in the final formulation.

9 Q Is it your understanding that --
10 strike that -- that the level of water
11 during processing can vary, but you can
12 still have an essentially water free
13 formulation that is covered by the claims
14 of the patent?

15 MR. HOCHSTETLER: Objection.

16 Leading.

17 A I have already indicated in my
18 declaration.

19 Please repeat the question.

20 (Record read)

21 A Yes, I have already discussed
22 that in the declaration.

23 Q Can you please explain why.

24 A Because during the preparation,
25 during the manufacturing or -- of the

1 Peppas
2 preparation of the formulation, it is
3 often possible to add water for a
4 particular process. In fact, several
5 times. And then as long as the final
6 material becomes essentially water free,
7 and essentially as long as the functional
8 characteristics of the mucoadhesive are
9 not jeopardized, the system will act as a
10 bioadhesive.

11 Q Is that what you discussed in
12 paragraphs 48 and 49 of the declaration?

13 MR. HOCHSTETLER: Objection.

14 Leading.

15 A Indeed, paragraph 48 I do say
16 explicitly. Second part, for example,
17 "Some muco-bioadhesive material will after
18 exposure to water during manufacture
19 continue to exhibit muco-bioadhesive
20 properties in the completed dosage form."
21 And in 49 the same thing.

22 Q Now, I'd like to shift gears and
23 go to a document that you were discussing
24 this afternoon with Mr. Hochstetler,
25 specifically what was Tab 15 in your

DR. NICHOLAS PEPPAS
OREXO AB vs. MYLAN

November 29, 2012
149

1 Peppas

2 declaration. And, I think, was marked as
3 Peppas Exhibit 9.

4 MR. HOCHSTETLER: Yes.

5 Q You had the chance to read and
6 study this article prior to your
7 deposition, correct?

8 A Yes, sir.

9 Q And you had the -- you have been
10 questioning at length, I would say, by Mr.
11 Hochstetler, correct?

12 A I was questioned by Mr.
13 Hochstetler.

14 Q In your view, does Exhibit 9
15 tell you whether Kollidon-CLM can act as a
16 bioadhesive or mucoadhesive promoting
17 agent?

18 MR. HOCHSTETLER: Objection.

19 A I believe that I have already
20 stated that during my previous part of the
21 deposition, that I believe Kollodin-CLM
22 acts as a mucoadhesive or bioadhesive
23 agent.

24 MR. ZULLOW: I pass the witness.

25 MR. HOCHSTETLER: Couple of